

## chain nodes :

14 15 17 27 28 39 40 51 52 60 61 62 76 77 91 92 106 107  
121 122 128

## ring nodes :

1 2 3 4 5 6 7 8 9 18 19 20 21 22 23 24 25 26 30 31 32  
33 34 35 36 37 38 42 43 44 45 46 47 48 49 50 67 68 69 70  
71 72 73 74 75 82 83 84 85 86 87 88 89 90 97 98 99 100  
101 102 103 104 105 112 113 114 115 116 117 118 119 120

## ring/chain nodes :

16 29 41 53 78 93 108 123

## chain bonds :

7-14 14-15 15-16 17-60 17-128 24-27 27-28 28-29 36-39 39-40 40-41  
48-51 51-52 52-53 60-61 61-62 74-76 76-77 77-78 89-91 91-92 92-93  
104-106 106-107 107-108 119-121 121-122 122-123

## ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 8-9 18-19 18-23 19-20  
20-21 21-22 22-23 22-24 23-26 24-25 25-26 30-31 30-35 31-32 32-33  
33-34 34-35 34-36 35-38 36-37 37-38 42-43 42-47 43-44 44-45 45-46  
46-47 46-48 47-50 48-49 49-50 67-68 67-72 68-69 69-70 70-71 71-72  
71-73 72-75 73-74 74-75 82-83 82-87 83-84 84-85 85-86 86-87 86-88  
87-90 88-89 89-90 97-98 97-102 98-99 99-100 100-101 101-102  
101-103 102-105 103-104 104-105 112-113 112-117 113-114 114-115  
115-116 116-117 116-118 117-120 118-119 119-120

## exact/norm bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-14 8-9 14-15 15-16 17-60  
17-128 18-19 18-23 19-20 20-21 21-22 22-23 22-24 23-26 24-25  
24-27 25-26 27-28 28-29 30-31 30-35 31-32 32-33 33-34 34-35 34-36  
35-38 36-37 36-39 37-38 39-40 40-41 42-43 42-47 43-44 44-45 45-46  
46-47 46-48 47-50 48-49 48-51 49-50 51-52 52-53 60-61 61-62 67-68  
67-72 68-69 69-70 70-71 71-72 71-73 72-75 73-74 74-75 74-76 76-77  
77-78 82-83 82-87 83-84 84-85 85-86 86-87 86-88 87-90 88-89 89-90  
89-91 91-92 92-93 97-98 97-102 98-99 99-100 100-101 101-102  
101-103 102-105 103-104 104-105 104-106 106-107 107-108 112-113  
112-117 113-114 114-115 115-116 116-117 116-118 117-120 118-119  
119-120

119-121 121-122 122-123

G1:C,N

G2:[\*1],[\*2],[\*3],[\*4],[\*5],[\*6],[\*7],[\*8]

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom  
14:CLASS 15:CLASS 16:CLASS 17:CLASS 18:Atom 19:Atom 20:Atom 21:Atom  
22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:CLASS 28:CLASS 29:CLASS  
30:Atom 31:Atom 32:Atom 33:Atom 34:Atom 35:Atom 36:Atom 37:Atom  
38:Atom 39:CLASS 40:CLASS 41:CLASS 42:Atom 43:Atom 44:Atom 45:Atom  
46:Atom 47:Atom 48:Atom 49:Atom 50:Atom 51:CLASS 52:CLASS 53:CLASS  
60:CLASS 61:CLASS 62:CLASS 67:Atom 68:Atom 69:Atom 70:Atom 71:Atom  
72:Atom 73:Atom 74:Atom 75:Atom 76:CLASS 77:CLASS 78:CLASS 82:Atom  
83:Atom 84:Atom 85:Atom 86:Atom 87:Atom 88:Atom 89:Atom 90:Atom  
91:CLASS 92:CLASS 93:CLASS 97:Atom 98:Atom 99:Atom 100:Atom 101:Atom  
102:Atom 103:Atom 104:Atom 105:Atom 106:CLASS 107:CLASS 108:CLASS  
112:Atom 113:Atom 114:Atom 115:Atom 116:Atom 117:Atom 118:Atom  
119:Atom 120:Atom 121:CLASS 122:CLASS 123:CLASS 128:CLASS

10/823,987

=> ....Testing the current file.... screen

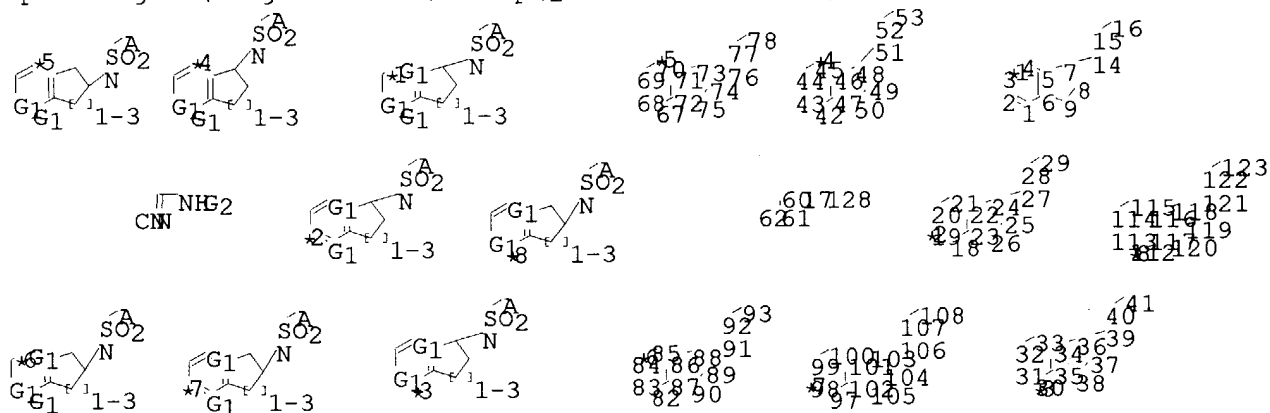
ENTER SCREEN EXPRESSION OR (END):end

=> screen 2016 OR 2026 OR 2039 OR 2040 OR 2045 OR 2047

L1 SCREEN CREATED

=>

Uploading C:\Program Files\Stnexp\Queries\10823987 (a).str



ring bonds :

```

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 8-9 18-19 18-23 19-20 20-21 21-22
22-23 22-24 23-26 24-25 25-26 30-31 30-35 31-32 32-33 33-34 34-35 34-36
35-38 36-37 37-38 42-43 42-47 43-44 44-45 45-46 46-47 46-48 47-50 48-49
49-50 67-68 67-72 68-69 69-70 70-71 71-72 71-73 72-75 73-74 74-75 82-83
82-87 83-84 84-85 85-86 86-87 86-88 87-90 88-89 89-90 97-98 97-102
98-99 99-100 100-101 101-102 101-103 102-105 103-104 104-105 112-113
112-117 113-114 114-115 115-116 116-117 116-118 117-120 118-119 119-120

```

exact/norm bonds :

```

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-14 8-9 14-15 15-16 17-60 17-128
18-19 18-23 19-20 20-21 21-22 22-23 22-24 23-26 24-25 24-27 25-26 27-28
28-29 30-31 30-35 31-32 32-33 33-34 34-35 34-36 35-38 36-37 36-39 37-38
39-40 40-41 42-43 42-47 43-44 44-45 45-46 46-47 46-48 47-50 48-49 48-51
49-50 51-52 52-53 60-61 61-62 67-68 67-72 68-69 69-70 70-71 71-72 71-73
72-75 73-74 74-75 74-76 76-77 77-78 82-83 82-87 83-84 84-85 85-86 86-87
86-88 87-90 88-89 89-90 89-91 91-92 92-93 97-98 97-102 98-99 99-100
100-101 101-102 101-103 102-105 103-104 104-105 104-106 106-107 107-108
112-113 112-117 113-114 114-115 115-116 116-117 116-118 117-120 118-119
119-120 119-121 121-122 122-123

```

G1:C,N

G2:[\*1],[\*2],[\*3],[\*4],[\*5],[\*6],[\*7],[\*8]

Match level :

```

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 14:CLASS
15:CLASS 16:CLASS 17:CLASS 18:Atom 19:Atom 20:Atom 21:Atom 22:Atom 23:Atom
24:Atom 25:Atom 26:Atom 27:CLASS 28:CLASS 29:CLASS 30:Atom 31:Atom 32:Atom
33:Atom 34:Atom 35:Atom 36:Atom 37:Atom 38:Atom 39:CLASS 40:CLASS 41:CLASS
42:Atom 43:Atom 44:Atom 45:Atom 46:Atom 47:Atom 48:Atom 49:Atom 50:Atom
51:CLASS 52:CLASS 53:CLASS 60:CLASS 61:CLASS 62:CLASS 67:Atom 68:Atom
69:Atom 70:Atom 71:Atom 72:Atom 73:Atom 74:Atom 75:Atom 76:CLASS 77:CLASS
78:CLASS 82:Atom 83:Atom 84:Atom 85:Atom 86:Atom 87:Atom 88:Atom 89:Atom
90:Atom 91:CLASS 92:CLASS 93:CLASS 97:Atom 98:Atom 99:Atom 100:Atom
101:Atom 102:Atom 103:Atom 104:Atom 105:Atom 106:CLASS 107:CLASS 108:CLASS
112:Atom 113:Atom 114:Atom 115:Atom 116:Atom 117:Atom 118:Atom 119:Atom
120:Atom 121:CLASS 122:CLASS 123:CLASS 128:CLASS

```

L2 STRUCTURE UPLOADED

=> que L2 NOT L1

L3 QUE L2 NOT L1

=> d l3

L3 HAS NO ANSWERS

L1 SCR 2016 OR 2026 OR 2039 OR 2040 OR 2045 OR 2047

L2 STR

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

Structure attributes must be viewed using STN Express query preparation.

L3 QUE L2 NOT L1

10/823,987

=> s 13 sss sam

SAMPLE SEARCH INITIATED 17:49:58 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 9 TO ITERATE

100.0% PROCESSED

## 9 ITERATIONS

0 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*

BATCH       \*\*COMPLETE\*\*

PROJECTED ITERATIONS: 9 TO 360

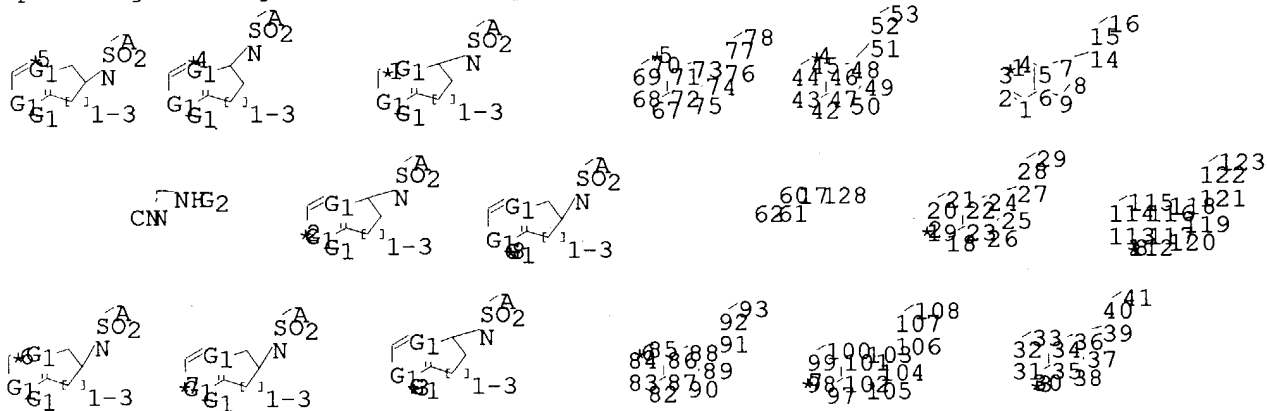
PROJECTED ANSWERS: 0 TO 0

L4

0 SEA SSS SAM L2 NOT L1

 $\Rightarrow$ 

Uploading C:\Program Files\Stnexp\Queries\10823987 (b).str



```
chain nodes :
```

chain nodes :  
14 15 17 27 28 39 40 51 52 60 61 62 76 77 91 92 106 107 121 122  
128

ring nodes :

[illegible]

ring/chain nodes :

16 29 41 53 78 93 108 123

chain bonds :

7-14 14-15 15-16 17-60 17-128 24-27 27-28 28-29 36-39 39-40 40-41 48-51

51-52 52-53 60-61 61-62 74-76 76-77 77-78 89-91 91-92 92-93 104-106

106-107 107-108 119-121 121-122 122-123

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 8-9 18-19 18-23 19-20 20-21 21-22

22-23 22-24 23-26 24-25 25-26 30-31 30-35 31-32 32-33 33-34 34-35 34-36

35-38 36-37 37-38 42-43 42-47 43-44 44-45 45-46 46-47 46-48 47-50 48-49

49-50 67-68 67-72 68-69 69-70 70-71 71-72 71-73 72-75 73-74 74-75 82-83

82-87 83-84 84-85 85-86 86-87 86-88 87-90 88-89 89-90 97-98 97-102

98-99 99-100 100-101 101-102 101-103 102-105 103-104 104-105 112-113

112-117 113-114 114-115 115-116 116-117 116-118 117-120 118-119 119-120

exact/norm bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-7 6-9 7-8 7-14 8-9 14-15 15-16 17-60 17-128

18-19 18-23 19-20 20-21 21-22 22-23 22-24 23-26 24-25 24-27 25-26 27-28

28-29 30-31 30-35 31-32 32-33 33-34 34-35 34-36 35-38 36-37 36-39 37-38

39-40 40-41 42-43 42-47 43-44 44-45 45-46 46-47 46-48 47-50 48-49 48-51

49-50 51-52 52-53 60-61 61-62 67-68 67-72 68-69 69-70 70-71 71-72 71-73

72-75 73-74 74-75 74-76 76-77 77-78 82-83 82-87 83-84 84-85 85-86 86-87

86-88 87-90 88-89 89-90 89-91 91-92 92-93 97-98 97-102 98-99 99-100

100-101 101-102 101-103 102-105 103-104 104-105 104-106 106-107 107-108

112-113 112-117 113-114 114-115 115-116 116-117 116-118 117-120 118-119

119-120 119-121 121-122 122-123

G1:C,N

G2:[\*1],[\*2],[\*3],[\*4],[\*5],[\*6],[\*7],[\*8]

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 14:CLASS

15:CLASS 16:CLASS 17:CLASS 18:Atom 19:Atom 20:Atom 21:Atom 22:Atom 23:Atom

24:Atom 25:Atom 26:Atom 27:CLASS 28:CLASS 29:CLASS 30:Atom 31:Atom 32:Atom

33:Atom 34:Atom 35:Atom 36:Atom 37:Atom 38:Atom 39:CLASS 40:CLASS 41:CLASS

42:Atom 43:Atom 44:Atom 45:Atom 46:Atom 47:Atom 48:Atom 49:Atom 50:Atom

51:CLASS 52:CLASS 53:CLASS 60:CLASS 61:CLASS 62:CLASS 67:Atom 68:Atom

69:Atom 70:Atom 71:Atom 72:Atom 73:Atom 74:Atom 75:Atom 76:CLASS 77:CLASS

78:CLASS 82:Atom 83:Atom 84:Atom 85:Atom 86:Atom 87:Atom 88:Atom 89:Atom

90:Atom 91:CLASS 92:CLASS 93:CLASS 97:Atom 98:Atom 99:Atom 100:Atom

101:Atom 102:Atom 103:Atom 104:Atom 105:Atom 106:CLASS 107:CLASS 108:CLASS

112:Atom 113:Atom 114:Atom 115:Atom 116:Atom 117:Atom 118:Atom 119:Atom

120:Atom 121:CLASS 122:CLASS 123:CLASS 128:CLASS

L5 STRUCTURE UPLOADED

=&gt; d 15

L5 HAS NO ANSWERS

L5 STR

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

Structure attributes must be viewed using STN Express query preparation.

10/823,987

=> s 15 sss sam

SAMPLE SEARCH INITIATED 17:51:59 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 12 TO ITERATE

100.0% PROCESSED 12 ITERATIONS

0 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*

BATCH \*\*COMPLETE\*\*

PROJECTED ITERATIONS: 33 TO 447

PROJECTED ANSWERS: 0 TO 0

L6 0 SEA SSS SAM L5

=> s 15 sss ful

FULL SEARCH INITIATED 17:52:09 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 311 TO ITERATE

100.0% PROCESSED 311 ITERATIONS

7 ANSWERS

SEARCH TIME: 00.00.01

L7 7 SEA SSS FUL L5

=> => s 17

L8 1 L7

=> d 18 bib,ab,hitstr

L8 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2000:161121 CAPLUS  
 DN 132:207763  
 TI Preparation of benzopyran, tetrahydroquinoline, pyrano[2,3-b]pyridine, and indan derivatives as potassium channel inhibitors  
 IN Lloyd, John; Finlay, Heather J.; Vaccaro, Wayne; Atwal, Karnail; Gross, Michael F.; Spear, Kerry L.  
 PA Bristol-Myers Squibb Company, USA  
 SO PCT Int. Appl., 210 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000012077	A1	20000309	WO 1999-US18599	19990816
	W:			AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM	
	RW:			GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG	
	CA 2341678	AA	20000309	CA 1999-2341678	19990816
	AU 9956753	A1	20000321	AU 1999-56753	19990816
	AU 754204	B2	20021107		
	EP 1109544	A1	20010627	EP 1999-943714	19990816
	R:			AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO	
	JP 2002523451	T2	20020730	JP 2000-567195	19990816
	US 6150356	A	20001121	US 1999-375955	19990817
	US 6511977	B1	20030128	US 2000-670285	20000925
	US 2004058931	A1	20040325	US 2002-295574	20021115
	US 2004067944	A1	20040408	US 2002-295404	20021115
	US 6784189	B2	20040831		
PRAI	US 1998-98709P	P	19980901		
	WO 1999-US18599	W	19990816		
	US 1999-375955	A3	19990817		
	US 2000-670285	A3	20000925		

OS MARPAT 132:207763

AB The title compds. (I) [wherein A, B, and D = independently CH or N; R = H, (aryl)alkyl, alkenyl, aryl, (hetero)cycloalkyl, or cycloalkylalkyl; R1 = (aryl)alkyl, aryl, alkenyl, heterocyclo, NR5-heterocyclo, (hetero)cycloalkyl, cycloalkylalkyl, or (un)substituted amino; or R and R1 taken together with the N-S atoms = a 5- to 8-membered ring; R2 = H, (aryl)alkyl, acyl, carboxymethyl, carbamoylmethyl, etc.; R3 and R4 = independently = H, (aryl)alkyl, cycloalkyl, or R3 and R4 taken together with the C to which they are attached form a 5- to 8-membered ring; R5 = H, (aryl)alkyl, alkenyl, aryl, or cycloalkyl(alkyl); X1 = (CR3R4)<sub>n</sub>, O, NR5, S, S(O), SO2, -OCR3R4-, -NR5CR3R4-, -SCR3R4-, -S(O)CR3R4-, or -SO2CR3R4-; n = 1-3; X2 = single bond, NR5, or O; Q = substituted NHCH:NCN, acyl, (un)substituted sulfamoyl, or substituted heterocyclo] were prepd by solution phase or solid phase synthesis as antiarrhythmics. For example, II was formed in a 3-step sequence involving: (1) sulfonylation of (trans)-4-amino-3,4-dihydro-2,2-dimethyl-6-cyano-2H-benzopyran with 4-ethylbenzenesulfonyl chloride (85%), (2) hydrolysis of



the nitrile to the carboxylic acid using aqueous Na2O2 (33%), and (3) amidation with 1,2,3,4-tetrahydro-1-naphthylamine (51%). I block the delayed rectifier voltage-gated K<sup>+</sup> channel (IKur) and are therefore useful in the prevention and treatment of cardiac arrhythmia (no data).

IT **260402-16-2P**

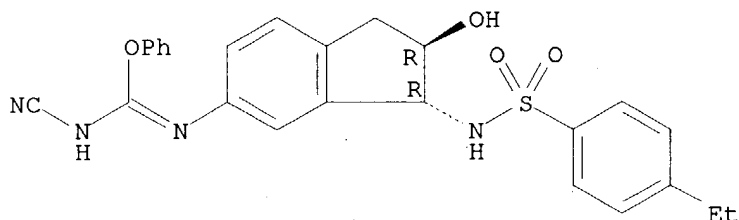
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(intermediate; preparation of arylsulfamido benzopyran, tetrahydroquinoline, pyrano[2,3-b]pyridine, and indan derivs. by solution phase or solid phase synthesis as potassium channel inhibitors for the treatment of arrhythmia)

RN 260402-16-2 CAPLUS

CN Carbamimidic acid, N-cyano-N'-[(2R,3R)-3-[[[4-ethylphenyl)sulfonyl]amino]-2,3-dihydro-2-hydroxy-1H-inden-5-yl]-, phenyl ester, rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



IT **260399-04-0P 260399-05-1P 260399-06-2P**

**260399-07-3P 260399-08-4P 260399-09-5P**

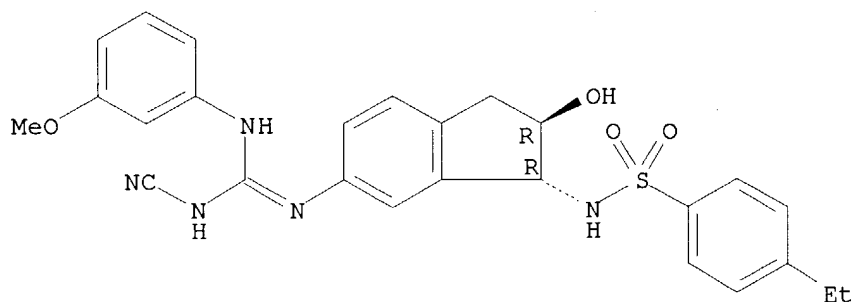
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(target compound; preparation of arylsulfamido benzopyran, tetrahydroquinoline, pyrano[2,3-b]pyridine, and indan derivs. by solution phase or solid phase synthesis as potassium channel inhibitors for the treatment of arrhythmia)

RN 260399-04-0 CAPLUS

CN Benzenesulfonamide, N-[(1R,2R)-6-[[[(cyanoamino)[(3-methoxyphenyl)amino]methylene]amino]-2,3-dihydro-2-hydroxy-1H-inden-1-yl]-4-ethyl-, rel- (9CI) (CA INDEX NAME)

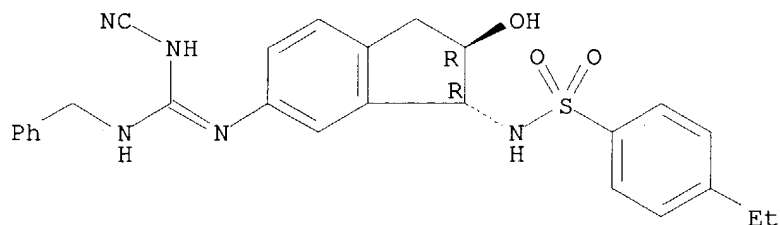
Relative stereochemistry.



RN 260399-05-1 CAPLUS

CN Benzenesulfonamide, N-[(1R,2R)-6-[[ (cyanoamino) [(phenylmethyl) amino]methylene]amino]-2,3-dihydro-2-hydroxy-1H-inden-1-yl]-4-ethyl-, rel- (9CI) (CA INDEX NAME)

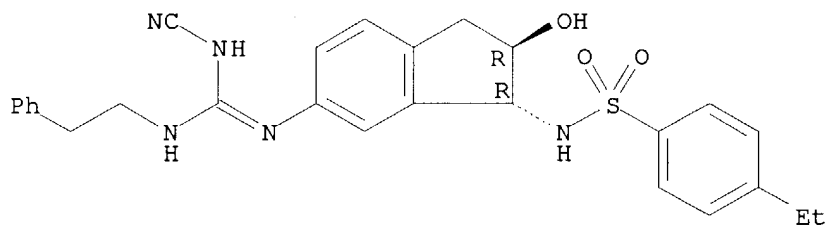
Relative stereochemistry.



RN 260399-06-2 CAPLUS

CN Benzenesulfonamide, N-[(1R,2R)-6-[[ (cyanoamino) [(2-phenylethyl) amino]methylene]amino]-2,3-dihydro-2-hydroxy-1H-inden-1-yl]-4-ethyl-, rel- (9CI) (CA INDEX NAME)

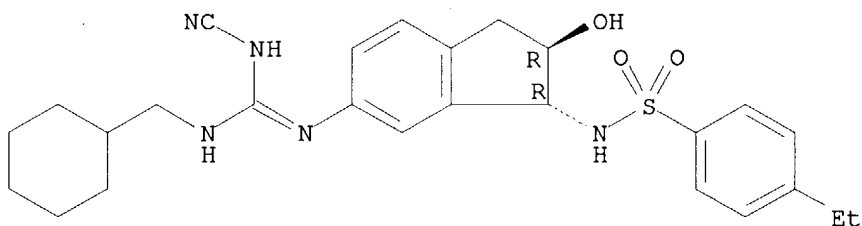
Relative stereochemistry.



RN 260399-07-3 CAPLUS

CN Benzenesulfonamide, N-[(1R,2R)-6-[[ (cyanoamino) [(cyclohexylmethyl) amino]methylene]amino]-2,3-dihydro-2-hydroxy-1H-inden-1-yl]-4-ethyl-, rel- (9CI) (CA INDEX NAME)

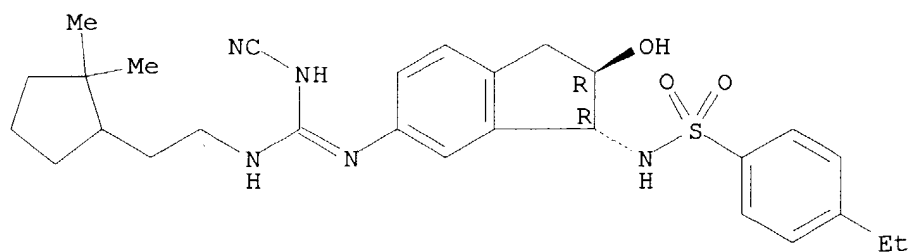
Relative stereochemistry.



RN 260399-08-4 CAPLUS

CN Benzenesulfonamide, N-[(1R,2R)-6-[[ (cyanoamino) [[2-(2,2-dimethylcyclopentyl)ethyl] amino]methylene]amino]-2,3-dihydro-2-hydroxy-1H-inden-1-yl]-4-ethyl-, rel- (9CI) (CA INDEX NAME)

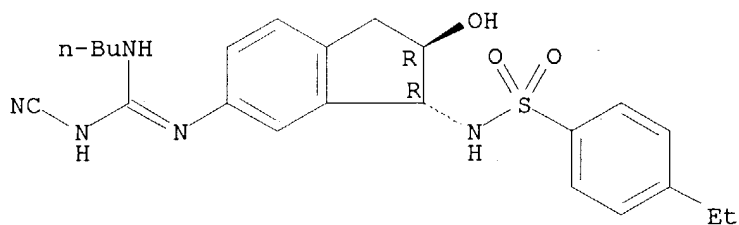
Relative stereochemistry.



RN 260399-09-5 CAPLUS

CN Benzenesulfonamide, N-[(1R,2R)-6-[[[(butylamino)(cyanoamino)methylene]amino]-2,3-dihydro-2-hydroxy-1H-inden-1-yl]-4-ethyl-, rel- (9CI) (CA INDEX NAME)

Relative stereochemistry.



RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

10/823,987

=> => d his

(FILE 'HOME' ENTERED AT 17:49:05 ON 23 SEP 2004)

FILE 'REGISTRY' ENTERED AT 17:49:10 ON 23 SEP 2004

L1 SCREEN 2016 OR 2026 OR 2039 OR 2040 OR 2045 OR 2047  
L2 STRUCTURE UPLOADED  
L3 QUE L2 NOT L1  
L4 0 S L3 SSS SAM  
L5 STRUCTURE UPLOADED  
L6 0 S L5 SSS SAM  
L7 7 S L5 SSS FUL

FILE 'CAPLUS' ENTERED AT 17:52:16 ON 23 SEP 2004

L8 1 S L7

FILE 'CAOLD' ENTERED AT 17:52:44 ON 23 SEP 2004

=> s l7

L9 0 L7

=> log y

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.42

162.93

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

ENTRY

SESSION

CA SUBSCRIBER PRICE

0.00

-0.70

STN INTERNATIONAL LOGOFF AT 17:52:55 ON 23 SEP 2004